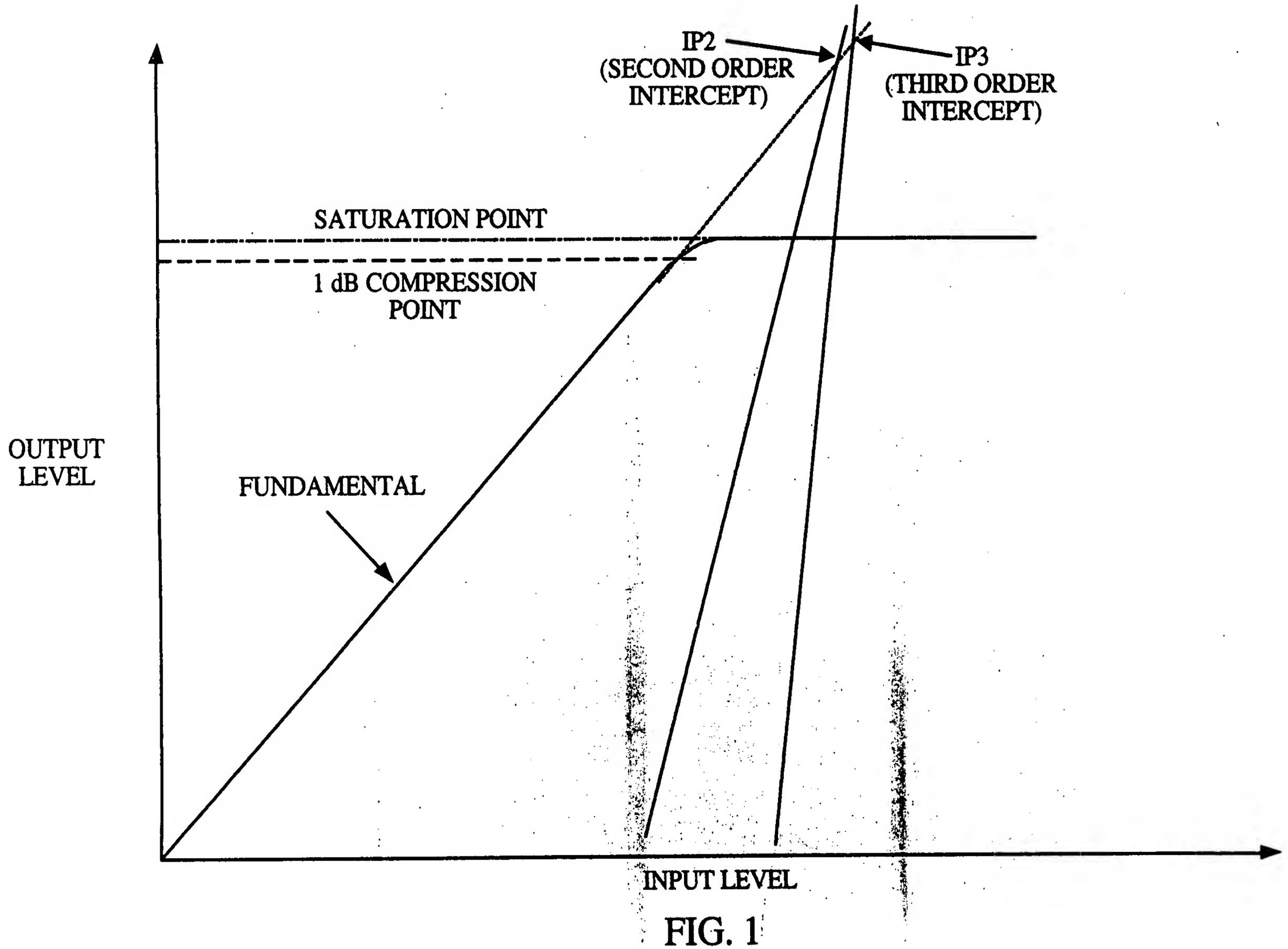
IP2
(SECOND ORDER
INTERCEPT)
IP3
(THIRD ORDER
INTERCEPT)
SATURATION POINT
1 dB COMPRESSION
POINT
OUTPUT
LEVEL
FUNDAMENTAL
INPUT LEVEL

FIG. 1

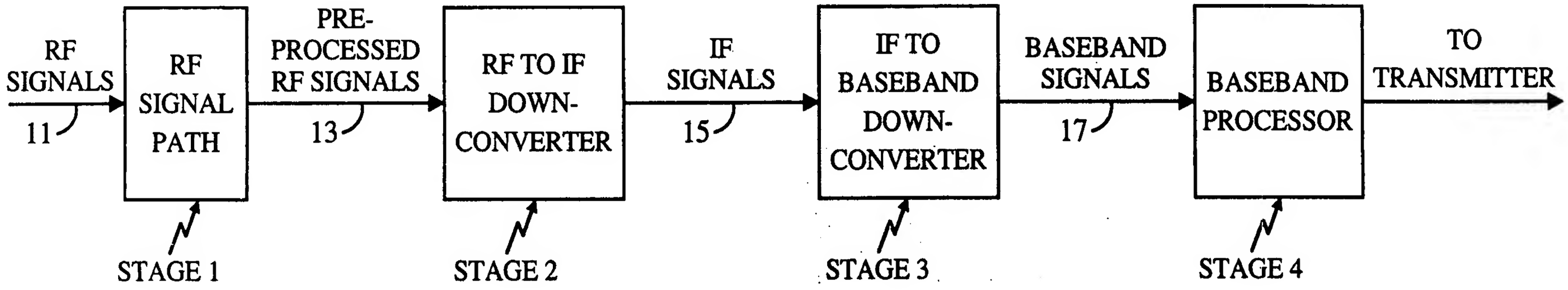
RF SIGNALS
11
RF SIGNAL PATH
PRE-PROCESSED RF SIGNALS
13
RF TO IF DOWN-CONVERTER
IF SIGNALS
15
IF TO BASEBAND DOWN-CONVERTER
BASEBAND SIGNALS
17
BASEBAND PROCESSOR
TO TRANSMITTER
STAGE 1
STAGE 2
STAGE 3
STAGE 4
RECEIVER
101

FIG. 2

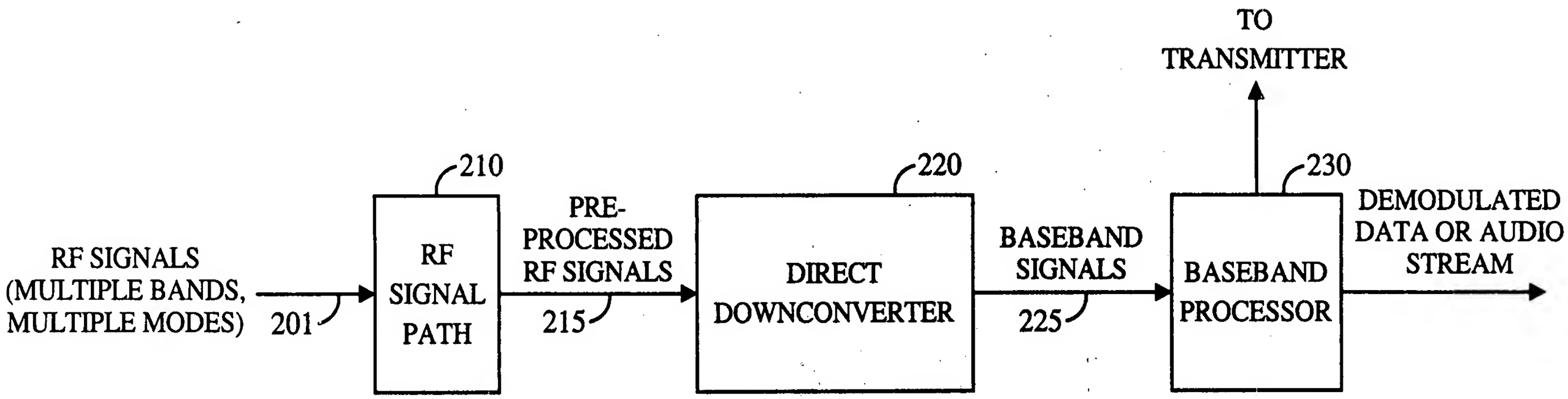
RF SIGNALS
(MULTIPLE BANDS,
MULTIPLE MODES)
201
210
RF
SIGNAL
PATH
PRE-
PROCESSED
RF SIGNALS
215
220
DIRECT
DOWNCONVERTER
BASEBAND
SIGNALS
225
TO
TRANSMITTER
230
BASEBAND
PROCESSOR
DEMODULATED
DATA OR AUDIO
STREAM

FIG. 4

200

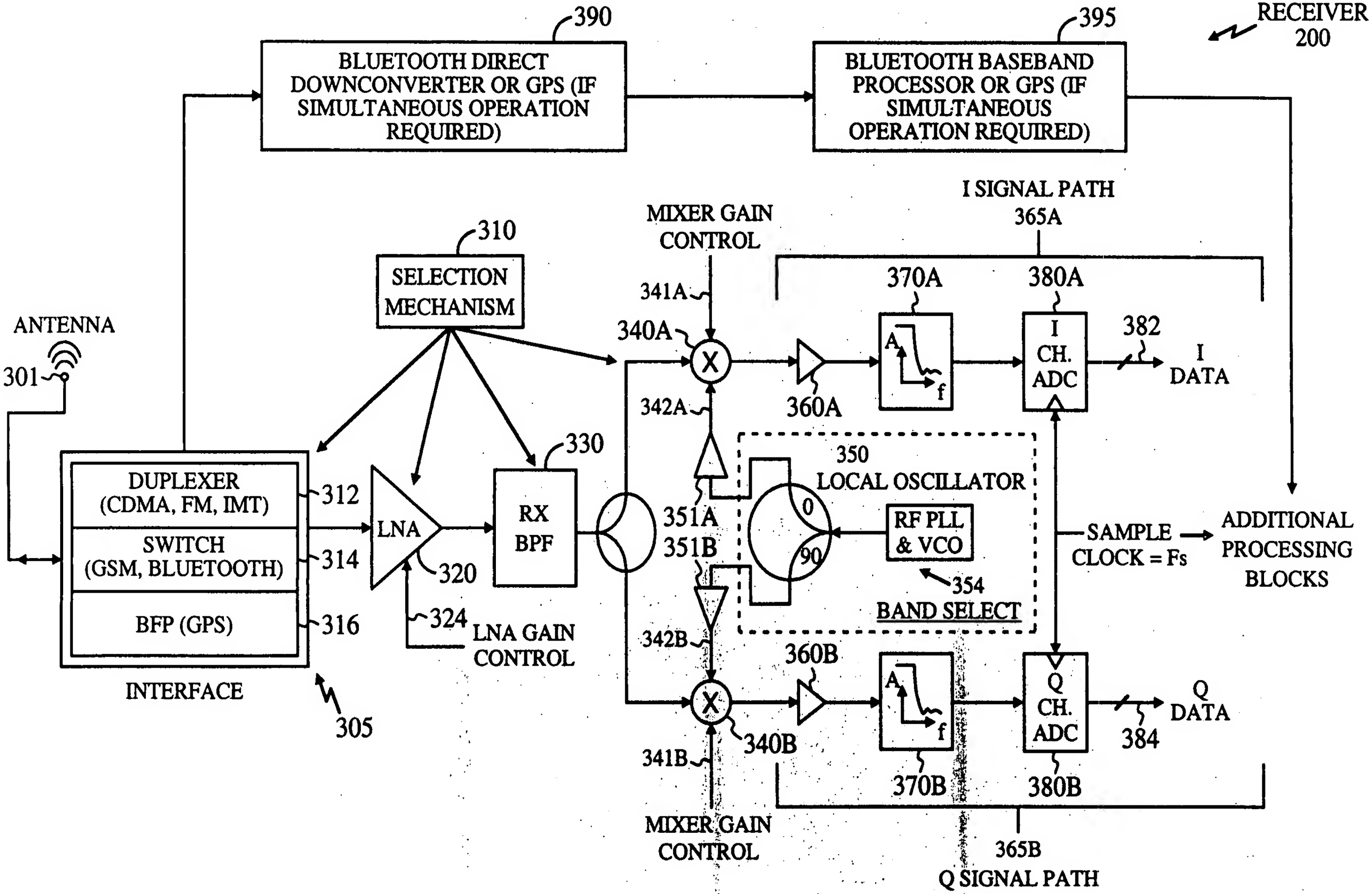
RECEIVER
200
390
BLUETOOTH DIRECT DOWNCONVERTER OR GPS (IF SIMULTANEOUS OPERATION REQUIRED)
395
BLUETOOTH BASEBAND PROCESSOR OR GPS (IF SIMULTANEOUS OPERATION REQUIRED)
I SIGNAL PATH
365A
MIXER GAIN CONTROL
310
SELECTION MECHANISM
341A
340A
370A
380A
382
I CH. ADC
I DATA
ANTENNA
301
342A
360A
330
350
LOCAL OSCILLATOR
DUPLEXER (CDMA, FM, IMT)
SWITCH (GSM, BLUETOOTH)
BFP (GPS)
312
314
316
LNA
320
RX BPF
351A
351B
RF PLL & VCO
354
BAND SELECT
SAMPLE CLOCK = Fs
ADDITIONAL PROCESSING BLOCKS
324
LNA GAIN CONTROL
342B
360B
Q CH. ADC
Q DATA
384
340B
341B
370B
380B
MIXER GAIN CONTROL
365B
Q SIGNAL PATH
INTERFACE
305

FIG. 5

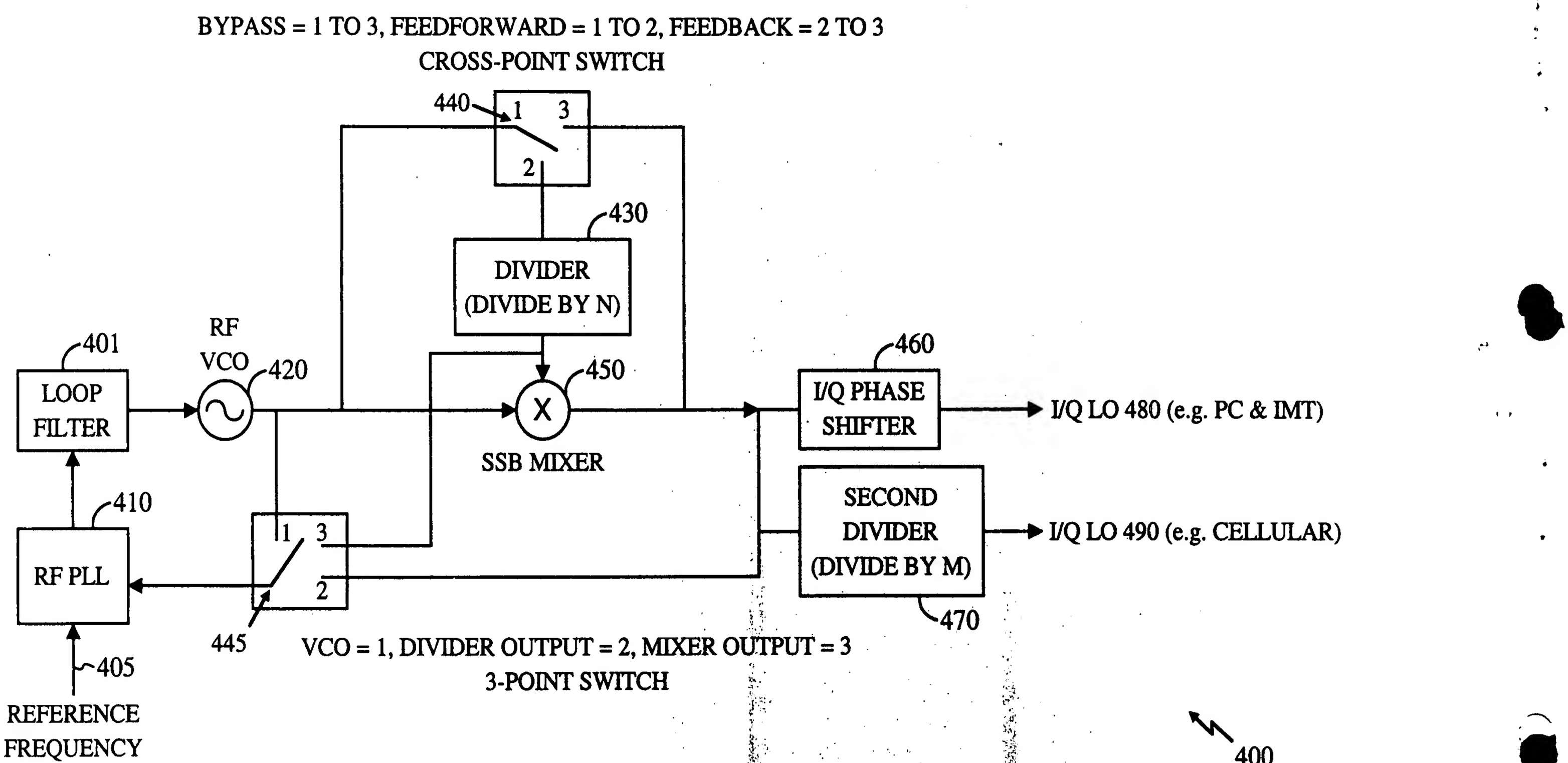
BYPASS = 1 TO 3, FEEDFORWARD = 1 TO 2, FEEDBACK = 2 TO 3
CROSS-POINT SWITCH
440
1
3
2
430
DIVIDER
(DIVIDE BY N)
401
RF
VCO
420
450
460
LOOP
FILTER
X
SSB MIXER
I/Q PHASE
SHIFTER
I/Q LO 480 (e.g. PC & IMT)
410
SECOND
DIVIDER
(DIVIDE BY M)
I/Q LO 490 (e.g. CELLULAR)
RF PLL
1
3
2
470
445
VCO = 1, DIVIDER OUTPUT = 2, MIXER OUTPUT = 3
3-POINT SWITCH
405
REFERENCE
FREQUENCY
400

FIG. 6

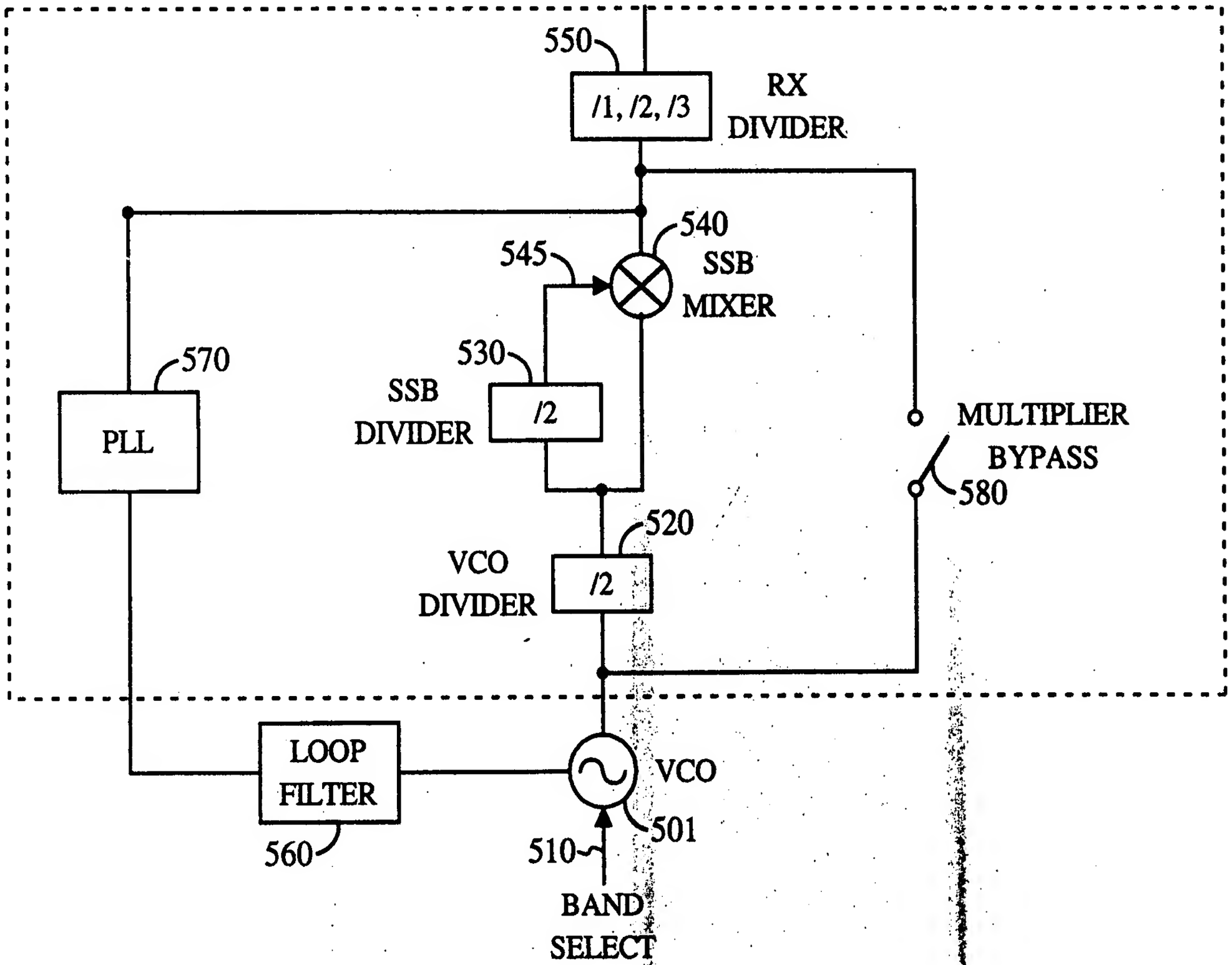
550
/1, /2, /3
RX
DIVIDER
540
545
SSB
MIXER
530
SSB
DIVIDER
/2
570
PLL
MULTIPLIER
BYPASS
580
520
VCO
DIVIDER
/2
LOOP
FILTER
VCO
560
501
510
BAND
SELECT
500

FIG. 7